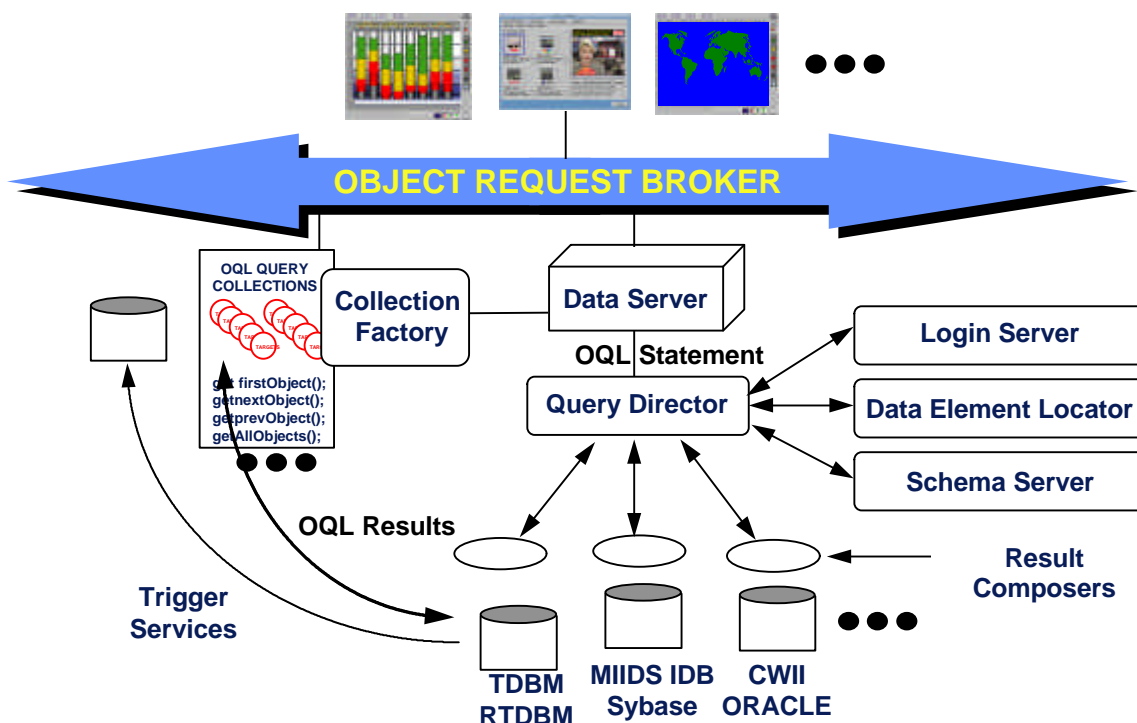


## Component Architecture/Design Diagram DATA SERVER

The following is a list of the Data Server sub-components: Data Element Locator Server, Login Server, Schema Server, Query Directors, Result Composers (Oracle, Informix, Sybase, ...), Query Cache Manager (Collection Factory), collection objects, and the Data Server ORB interface. The Data Server is a completely distributed system. All of the components listed can run on any platform across a wide area. However, it is more likely that many of these will run on the same platform. The Data Element Locator Server and the Login Server have system administration applications developed in X-Windows/Motif such that a user can connect to a local or remote server and configure these servers. A schema admin tool is also provided allowing a DBA or software developer to connect to the JTF ATD Schema Server, import a new object model, output ODF, output fineC2 C++ classes, and map database attributes to the JTF ATD C2 Schema from a local or remote workstation.



## **Platform and Interface Details**

(Cover each platform from the diagram)

### **DATA SERVER**

**PLATFORM H/W:** Sun and HP

**PLATFORM OS:** Solaris 2.4, 2.5, HP-UX 9.0.7

**OTHER COTS SYSTEM SOFTWARE:** Depends on the requirement for Sybase, Oracle, Informix, Objectivity Result Composers and whether the Result Composers can run on the database server platform or must run on a remote workstation. Running Result Composers remotely will require Client software from the appropriate database management system vendors.

The Data Server also uses Orbix 2.0 as its ORB.

**APIS AND STANDARDS SUPPORTED:** (Including communications protocols and standards)

The Data Server supports a SQL front end. The Data Server also supports an OQL front end that is based on a subset of the ODMG standard. We are continually working towards supporting as much of the ODMG OQL standard as possible.

We are following the OMG specification for Query Services. We are working to ensure that the Collection interfaces and behaviors are consistent with those specified by OMG.

Communication between sub-components is accomplished using TCP/IP sockets. This level of networking was decided on such that we can eventually gain access to databases hosted on Personal Computers using an ODBC Result Composer and not require the database host to have an ORB installed. We also did not want to require an ORB to be installed on every machine on which Data Server sub-components are hosted.

## Component Details

### DATA SERVER

#### Component Design

**COTS/GOTS Dependencies:** (to include information and other applications)

- Sybase 11
- Oracle 7.3.X
- Informix
- Objectivity
- Tdbm

The requirement and or dependency on the COTS software listed above depends on whether the Result Composers can run on the database server platform or must run on a remote workstation. Running Result Composers remotely will require Client software from the appropriate database management system vendors.

The Data Server also uses Orbix 2.0 as it's ORB.

**HARDWARE/OS DEPENDENCIES:** Solaris 2.4 and 2.5, HP-UX 9.0.7

**DESIGN METHODS/REPRESENTATION:** Use of Rumbaugh for developing high-level object model of the JTF ATD Data Server.

**DESIGN STANDARDS:** Rumbaugh

**DESIGN ARTIFACTS (INCLUDING CASE TOOL DATABASES):** (Available and Planned)

Available - StP OMT, Planned - Use of Frameworks to enhance design documentation tool suite.

**INTERFACE DOCUMENTATION:** (Internal & external and when it will be updated)

Interfaces defined in the JTF ATD Server Specification document and self documented using the Interface Definition Language (IDL).

**DATABASE VIEW DOCUMENTATION:** (References and when it will be updated)

The C2Schema and the meta information stored in the JTF ATD Schema Server for accessing data from legacy databases provides a object model view of data. The OMWG is responsible for maintaining the C2 Schema and the database mapping information and for updating this information periodically throughout the year.

## **Component Implementation**

### **DATA SERVER**

**LANGUAGES USED:** C and C++, SQL, OQL

**CODING STANDARDS:** Follow the standards outlined within the DII COE

**SOFTWARE SIZE:** Actual = approx. 130,000 lines of code. Planned = approx. 180,000 loc

**USER INTERFACE TECHNOLOGY:** X-Windows/Motif for Data Server admin applications

**REUSED MODULES:** Reused code for the Login Server, Data Element Locator, and Schema Server from a legacy OO browser of heterogeneous databases developed for NRaD.